

CHASM BROOK BRIDGE
Acadia National Park Roads & Bridges
Spanning Chasm Brook on West Sargent Mountain Road
Bar Harbor Vicinity
Hancock County
Maine

HAER NO. ME-38

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

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HISTORIC AMERICAN ENGINEERING RECORD

CHASM BROOK BRIDGE

HAER No. ME-38

LOCATION: Spanning Chasm Brook on Sargent Mountain (Around the Mountain) carriage road loop, 1/2 mile S of Aunt Betty Pond, Bar Harbor vicinity, Mount Desert Island, Hancock County, Maine
Quad: Southwest Harbor, ME
UTM: 19/557750/4911175

DATE OF
CONSTRUCTION: 1926

ARCHITECT: William Welles Bosworth, New York, after an existing structure in Central Park and Little Harbor Brook Bridge

ENGINEER: Paul D. Simpson, for John D. Rockefeller, Jr.

CONTRACTOR: B. W. Candage & Son, Seal Harbor, ME

STRUCTURE: Stone-faced reinforced concrete filled spandrel arch bridge

FHWA NO.: 1700-0024S

OWNER: Acadia National Park, National Park Service

SIGNIFICANCE: Copied from a bridge in New York's Central Park, Chasm Bridge bears the Sargent Mountain carriage road loop across its namesake stream on a shallow segmental arch. The bridge design was previously used for three other structures on the Rockefeller carriage road system on Mount Desert Island.

PROJECT
INFORMATION: Documentation of Chasm Brook Bridge is part of the Acadia National Park Roads and Bridges Recording Project, conducted in 1994-95 by the Historic American Engineering Record of the National Park Service. This is one in a series of project reports. HAER No. ME-13, ROCKEFELLER CARRIAGE ROADS, contains more specific information on the park carriage road system.

Richard H. Quin, HAER Historian, 1994

This is one in a series of reports prepared for the 1994-95 Acadia National Park Roads and Bridges Recording Project. HAER No. ME-13, ROCKEFELLER CARRIAGE ROADS, is an overview history of the entire carriage road system.

HISTORY

One of the most important parts of John D. Rockefeller, Jr.'s extensive carriage road system on Maine's Mount Desert Island was a eleven-mile loop around the central mass of Sargent, Jordan and Penobscot mountains. Originally called the "Sargent Mountain Road," it is now commonly referred to as the "Around the Mountain" loop. Construction of the loop system entailed the building of a number of impressive stone bridges which sometimes are called the "Seven Sisters."

On the north flank of Sargent Mountain, the road was located to cross a deep ravine cut by Chasm Brook, a small perennial stream which drops down the mountain's north side into Gilmore Marsh and Aunt Betty Pond. The ravine or "chasm" which lends the brook its name was a particularly scenic spot and chosen for the road crossing by Rockefeller and his carriage road engineer, Paul D. Simpson, who together sought to locate the roads so they would display the island's rustic beauty at its best. The crossing would require a bridge, and as was typical on the carriage road system, a rustic stone-faced reinforced concrete bridge was to be employed.

The bridge design was adapted from plans for three earlier bridges by New York architect William Welles Bosworth, who had done extensive work for Rockefeller, designing his townhouse in the city and the landscape for the family's Pocantico Hills estate in the Hudson River valley. Bosworth in turn had based the design on a small bridge in New York's Central Park. Rockefeller had been impressed with the park bridge and had the design adapted for four structures on his Mount Desert Island carriage road system.

Final plans for the bridge were accepted by Rockefeller in September 1925. He returned them to Bosworth's office to be copied, with instructions for a set to be sent to Seal Harbor contractor Sam Candage, who had built most of the Mount Desert carriage road bridges to this point. At the end of the year, Rockefeller discovered that the set had never been sent, and consequently Candage had been unable to start the work. Rockefeller apologized to Candage for the delay, as the

contractor had intended to begin cutting stone for the structure in the early fall and was forced to delay the effort until the following spring.¹

Rockefeller's carriage road engineer, Paul Simpson, wrote his employer concerning the site details in February 1926. Simpson thought the general plan of the bridge was "excellent," and stated that the design could easily meet the grade requirements for the chosen site. He argued that the height of the parapet wall should be reduced from 3'6" to 3' in order to allow people standing on the bridge to more easily see the brook beneath the structure. This change, he suggested, could be effected by keeping the roadway grade the same and lowering the bridge 6". The appearance of the bridge would be unchanged by the modification.²

Rockefeller insisted that Candage use split, seam faced granite for the construction, rather than tool-edged stone, as he desired "a most rustic appearance" for the structure. The matter was one of great importance to Rockefeller, who told Candage "This is the only respect in which you have not been successful in the large bridges which you have built in the last two or three years. . . I am counting upon your taking steps to prevent [the crews] doing again such "good work" as they would call it, but work which is not so artistic from my point of view."³

Because the road segment was located on federal land, the National Park Service had to approve the design of the bridge. The approval was granted in the spring of 1926, and Rockefeller

¹John D. Rockefeller, Jr., New York, to Sam Candage, Seal Harbor, ME, 31 December 1925. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 122 Folder 1237.

²Paul D. Simpson, Seal Harbor, ME to Rockefeller, 6 February 1926. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 122 Folder 1237.

³Quoted in Vanasse Hangen Brustlin, Inc. and McGinley Hart & Associates, *Historic Bridge Reconnaissance Study, Carriage Road System, Acadia National Park*, draft edition (Boston, MA: National Park Service, North Atlantic Regional Office, September 1993), 74.

made plans to proceed with its construction. He asked Candage to send estimates for the construction costs.⁴ Candage estimated these at \$15,202.64.⁵ However, as was the case with most of Candage's other bridge projects, this estimate would prove inadequate. The structure was completed in 1926 at a cost of \$16,220.⁶

The bridge has remained in continuous use. A 1993 structural evaluation by Vanasse Hangen Brustlin, Inc., a Boston engineering firm, recorded several problems with the structure, including deposition of calcium carbonate on the intrados or underside of the arch and on the spandrel and wing walls, moderate mortar joint deterioration, vegetation growing on the roadway surface, and wearing of the roadway which had nearly exposed the concrete arch. The report recommended waterproofing the structure to convey water off the roadway, repointing the mortar joints, removal of the calcium carbonate efflorescence, and construction of a special roadway treatment to protect the crown of the arch.⁷ The vegetation was removed from the roadway margins and a new surface treatment was applied in early summer 1995.

DESCRIPTION

Chasm Brook Bridge bears the Sargent Mountain Road over the deep ravine which gives the stream its name. The structure is located on the north flank of Sargent Mountain about half a mile west of the road's junction with the Aunt Betty Pond connector road. The bridge offers a splendid view of a 40' waterfall where Chasm Brook cascades over a ledge adjacent to the structure. The bridge was obviously sited to provide this view, a technique also used for the location of Waterfall Bridge [HAER No. ME-35] and Amphitheatre Bridge [HAER No. ME-41] elsewhere on the loop.

⁴"Memorandum Regarding Road Work on Mount Desert Island," MSS, n.d. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 109 Folder 1079.

⁵"Bridges Built by B. W. Candage," MSS, 19 August 1927. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 1217.

⁶"Bridges Built by B.W. Candage."

⁷Vanasse Hangen Brustlin and McGinley Hart, 75, 77.

The 54' bridge is built on a tangent and on a grade rising from east to west. The segmental arch structure springs from abutments springing from the sides of the ravine and carefully designed to appear part of the canyon walls themselves. The arch has a clear span of 23'8" and stands 18' over the streambed. Cut stone arch radiating voussoirs define the arch. Stone parapet walls generally follow the line of the arch and flare slightly to terminate in scrolled end posts or curtails. A cladding of random ashlar native pink granite conceals the bridge's reinforced concrete substructure and helps the bridge harmonize with its wild mountain location.

Although the bridge is one of four based on the Gap Stowe Bridge in New York's Central Park, Chasm Brook Bridge differs from the other three structures in several ways. Being designed to span a ravine, the abutments are set into the canyon walls, rather than rise from the banks of the stream. The parapet walls do not follow symmetrical curves, but are more flattened on the west or higher side and terminate in the scrolled curtails rather than square end posts. Also, weep holes with decorative scuppers, common to the other structures, are not present on this structure. The date of construction, 1926, is carved into the upper parapet.⁸

The bridge is surrounded by mixed woods with oaks predominating but also including mountain maples, pines, spruce and birch. A large arborvitae stands as a sentinel at the east end of the structure. An old trail, a continuation of the North Ridge Sargent Mountain Trail, once followed Chasm Brook down to the bridge, but all evidence of the trail has apparently vanished.

⁸This description is based in part on the account in Vanasse Hangen Brustlin and McGinley Hart report, page 74, and on field observations during a 1995 site visit.

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